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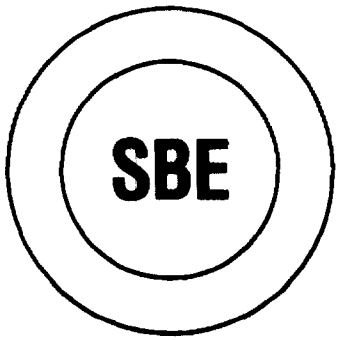
Comments of the
Society of Broadcast Engineers, Inc.

MM Docket 94-130
Unattended Operation of Broadcast Stations and Updated Remote Control and Monitoring Rules



January 20, 1995

SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

TABLE OF CONTENTS

SUMMARY

The Society of Broadcast Engineers (SBE), the national association of broadcast engineers and technical communications professionals, submits its comments in response to the Notice of Proposed Rule Making (the Notice), FCC 94-289, ___ FCC Rcd. ___, released December 7, 1994. The Notice proposes to determine whether and under what circumstances the Commission should waive the requirement that a broadcast station must have a licensed radio operator on duty in charge of the transmitter during all periods of broadcast operation.

SBE supports the proposal in general. However, several safeguards should be incorporated into any final order in this proceeding to assure that this deregulation has a positive effect.

SBE has never believed that a duty operator holding a Restricted Permit was a meaningful requirement in the first place. Most station licensees exercise due diligence in the operation of their stations, and should be given freedom to determine the best means of monitoring that operation. Sufficient resources should be pledged to accomplish this, however, and the licensees should so certify.

The Commission should reinstate the "good guy" enforcement procedures of the early 1980s, and the self-inspection program should be continued. Automated Measurement and Control (AMC) equipment should be required, with minimum operating capabilities and parameters. For directional AM stations, only those which have approved sampling systems should be allowed to operate unattended. International broadcast stations should be allowed to operate unattended, but not experimental broadcast stations.

These and other specific safeguards discussed in the comments should be incorporated in the final report and order in this proceeding.

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 73 and 74 of the Commission's Rules to permit unattended operation of broadcast stations and to update broadcast station transmitter control and monitoring requirements	)	MM Docket No. 94-130

To: The Commission

Comments of the Society of Broadcast Engineers, Inc.

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members in the United States, hereby respectfully submits its comments in the above-captioned Notice of Proposed Rule Making (NPRM) relating to unattended operation of broadcast stations and the updating of remote control and monitoring requirements.

I. SBE Supports Allowing Unattended Operation in Most Cases

1. This rule making proposes to eliminate the requirement that a licensed operator be on duty at a broadcast station's transmitter, extension meter location, remote control point, or automatic transmission system (ATS) monitoring point, during periods when the station is in operation. In general, the SBE supports this next logical step in deregulation of the broadcasting industry. In 1981 the Commission eliminated the requirement for duty operators at broadcast stations to hold higher classes of commercial radiotelephone operator licenses.[1] Experience has shown that while this has not resulted in a wholesale reduction of the technical quality of signals broadcast to the American public, there have been troubling cases of violations involving interference or safety issues, as documented by the attached Appendix A. Accordingly, SBE suggests several "safeguards" be adopted to ensure that this deregulation has only a positive effect.

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[1] Docket 20817, Fourth Report and Order, effective August 7, 1981. This docket eliminated the Radiotelephone First Class Operator License and the Radiotelephone Third Class Operator License with Broadcast Endorsement. It further deregulated broadcast station duty operator licensing by only requiring such persons to hold the token Restricted Radiotelephone Operator Permit ("RP").

2. SBE believes that incidents regarding interference or safety issues occurred for two primary reasons: First, the resources available to the Commission's Compliance and Information Bureau (CIB)[2] have been steadily reduced over the years, while CIB's responsibilities have been steadily increased. This has reduced the Commission's regulatory presence, and appears to have been an incentive to some licensees to make imprudent engineering staff reductions and other short-cuts. Second, SBE believes that a duty operator holding only the token RP does not, in general, have the same sense of responsibility that an operator holding a First Class Radiotelephone Operator license had, or that a person holding a "grandfathered" General Radiotelephone Operator license has. Such individuals worked hard to obtain those licenses, value them accordingly, and would "think twice" before knowingly and willfully allowing a broadcast station to operate out of tolerance or with inappropriate modes of operation. In contrast, SBE believes that the holder of a RP, who did not have to expend significant effort to obtain that document, is far less resilient to pressures that may be brought to bear to allow out-of-tolerance or inappropriate modes of operation.

3. The SBE agrees that most station licensees exercise due diligence in the operation of their stations. SBE also concurs with the Commission admonition that this deregulation, if adopted, would in no way diminish, much less eliminate, the responsibilities of licensees to adequately monitor the technical operation and maintain all parameters within the limits specified in the Commission's Rules.[3]

4. SBE notes that there is no question in the Commission's current broadcast station application forms that asks whether the applicant will provide sufficient resources to ensure that the station will be operated in compliance with all of the Commission's technical standards. SBE suggests that such a question be added to FCC Forms 301, 302, and 340, to make it more likely that the broadcast station engineers and contract engineers who make the actual repairs and adjustments are to be given the operating budgets and test equipment necessary to carry out such a responsibility.

II. The Proposed Deregulation Need Not Encourage Negligence or Irresponsibility if the Commission Sends the Proper Message

5. At Paragraph 8 the NPRM asks whether allowing unattended operation might encourage negligence or irresponsibility on the part of certain broadcast licensees, with a resulting increase in

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2 Formerly known as Field Operations Bureau, or FOB.

3 NPRM, at Paragraph 7.

interference levels between broadcast stations and other services. The SBE believes that so long as the Commission's CIB is funded so as to provide a realistic presence of random and complaint-driven off-air monitoring, and, where appropriate, station inspections, the proposed deregulation will not be widely perceived as giving a broadcast station licensee *carte blanche* to maintain and operate a broadcast station as it pleases (or, more appropriately, to *fail* to maintain and *fail* to properly operate its station).

6. In this regard, the SBE urges the Commission to re-institute its "good guy" enforcement program from the early 1980's. Under this program, all broadcast stations were monitored at least once during their license term for technical compliance. This was done by mobile measurement vans monitoring the station's transmitted signal, so licensees never knew when such monitoring might be taking place. If the monitoring found no technical violations, a "good guy" notice was mailed to the licensee, advising it of the monitoring and providing a summary of the measured (and within tolerance) parameters. If the monitoring revealed a departure from the Commission's technical standards sufficiently serious to warrant an Official Notice of Violation or Notice of Apparent Liability (as opposed to an Advisory Notice), then a station inspection was triggered. This inspection could be limited to just the problem parameter, or might be expanded to a full-breadth general inspection of the station.

7. The "good guy" program was highly effective, because it rewarded licensees that invested the necessary manpower and equipment to ensure a rule compliant signal, while directing the Commission's finite field inspection capability to those stations warranting inspection by virtue of an out-of-tolerance, and potentially interference-causing, signal.

8. Of course, the Commission should continue to use complaints from the public, other broadcast stations, other radio services, and other governmental agencies, also as an indicator of stations requiring special regulatory attention. For example, allegations of an AM station failing to switch from daytime to nighttime power levels, or from daytime to nighttime patterns, could first be monitored at a monitoring point or even an arbitrary site, to see if a "step function" drop in the field strength occurred at the prescribed time.

9. SBE also encourages the Commission to continue its self-inspection program. The self-inspection program has proven to be an enforcement tool that is low-cost to the Commission and educational to broadcasters.

10. In short, it is imperative that broadcast station licensees perceive that any attempt to capitalize on unattended operation by taking shortcuts in their monitoring and equipment

maintenance and repair budgets, would be promptly detected and that the regulatory consequence of such short-cuts would be likely to more than offset any savings in personnel or maintenance costs.

III. Unattended Stations Should Be Required to Employ AMC

11. At Paragraph 10, the NPRM asks if stations electing to operate unattended should be required to install accurate automated measurement and control ("AMC") equipment. The SBE believes that the answer to this question should be "yes." Such an Automatic Transmission System (ATS)-like requirement would act as an "insurance policy," making it less likely that an unattended broadcast station would cause interference.

12. Stations electing to continue to have a duty operator present (even though that operator would no longer be required to hold any class of the FCC operator license or permit) would, of course, not be required to obtain and install AMC equipment. Stations would, therefore, have a choice whether to incur this expense.

13. AMC-equipped stations should, however, have the option of allowing the station to be temporarily operated at reduced power during certain out-of-tolerance conditions, rather than always being required to take the station off the air. For example, an unattended AMC station with a directional and lower-power nighttime pattern should be allowed the option of at least staying on the air with its omnidirectional daytime pattern, if power is suitably reduced so as not to exceed its most restrictive nighttime pattern radiation limits. Another common reason why stations must sometimes operate at reduced power is a high VSWR ratio caused by antenna icing. Under such conditions a station might temporarily need to operate at reduced power. A licensee, should, of course, be expected to promptly correct an underpower or undermodulation problem, but in the interim operating with even greatly reduced power would still be preferable to being off the air entirely.

IV. AMC Parameters

14. SBE suggests that AMC equipment be required to monitor and/or control the following parameters:

A. Standard Broadcast Stations

1. EAS alarm

2. Operating power (common point current for DA stations, base current for non-DA stations)

3. Mode of operation (omnidirectional, DA-1, DA-2, *etc.*)
4. Time of operation (*i.e.*, automatic switching between modes of operation)
5. Antenna monitor indications of base current ratios and phases
6. Modulation
7. Tower lighting (if required)

B. FM Broadcast Stations

1. EAS alarm
2. Operating power
3. Modulation
4. Tower lighting (if required)

C. TV Broadcast Stations

1. EAS alarm
2. Visual power
3 Aural power
4. Visual modulation (reference white level)
5. Aural modulation
6. Tower lighting (if required)

15. These are the "core" operating parameters. They involve either parameters with interference potential (power and modulation) or safety (EAS, tower lighting). All AMC equipment should be required to monitor and to automatically control these parameters. AMC equipment should have the option of monitoring additional parameters, at the licensee's discretion.

16. The AMC equipment should be required to take the station off the air in the event it detects, but is unable to correct, overpower operation or overmodulation, but should be allowed to leave an underpower or undermodulated station on the air in the event it is unable to correct these conditions. Underpower operation and/or undermodulation do not pose an interference threat to other broadcast stations or services.

17. AMC equipment should have no obligation to routinely monitor for off-frequency operation or spurious emissions, as there is no requirement now to routinely monitor these parameters. Modern-day broadcast transmitters rarely operate off frequency or with spurious emissions.

Occasional checks by maintenance personnel, at intervals appropriate for the age and condition of the transmitter, should be left to the licensee's discretion, with due regard that the Commission will not lend a sympathetic ear to excuses in the event off frequency operation does occur, or spurious emissions are generated.

V. Only Standard Broadcast Stations with Approved Sampling Systems Should be Allowed the Option of Unattended Operation

18. For directional standard broadcast stations, SBE believes that only stations that have installed an approved sampling system should be allowed the option of installing AMC equipment and operating unattended. Such a policy would reward licensees who have gone to the expense of installing an approved sampling system.

19. SBE believes than modern-day computers or dedicated microprocessors would have little difficulty interfacing with an antenna monitor connected to an approved sampling system. Such systems could use relatively simple software to detect whether an appropriate pattern change has, or has not, been successfully implemented by automatic relays.

20. SBE notes that the proposed new Section 73.158(c) does not agree with Paragraph 31 of the NPRM. That paragraph proposes allowing a 24-hour period for directional AM stations with out-of-tolerance ratios or phases to measure its monitoring point field strengths. Yet the wording in the proposed new Section 73.158(c) fails to implement this, and instead requires corrective action within 3 minutes. Section 73.158(c) should be re-written to correctly implement the 24-hour period discussed at Paragraph 31.

VI. International Broadcast Stations Should Also Be Allowed Unattended Operation

21. SBE believes that modern-day computers could also easily monitor and control International Broadcast Stations. Although these stations typically operate on different frequencies at different times of the day, this is exactly the sort of operation that is amenable to computer control and monitoring. SBE has no reason to believe that International Broadcast Stations could not be operated unattended any less successfully that AM directional broadcast stations could be operated unattended.

VII. Commission Should Not Automatically Authorize Unattended Operation for Experimental Broadcast Stations

22. SBE believes that the Commission should have the option of allowing unattended operation by Experimental Broadcast Stations, but that the Rules should not automatically confer this right. Experimental stations are, by their very nature, unique. Unattended operation for one type of experimental station may have little interference threat, while constituting an unacceptable interference threat for another type of experimental station. Experimental Broadcast Station applicants should be allowed to request unattended operation, which the Commission would then evaluate on a case-by-case basis.

VIII. Tower Lighting

23. Stations electing to operate unattended and having a tower lighting requirement should be required to install AMC equipment that automatically monitors tower lighting. SBE does not believe that any further automated steps are necessary; it believes that licensees are well aware of the safety hazard and resulting liabilities (both FCC and potential civil liabilities) in the event that a tower lighting failure alarm is ignored or is not promptly rectified.

IX. EAS Issues

24. SBE believes that the effective date of these proposed deregulations should be synchronized with the effective dates of the newly adopted Emergency Alert System (EAS).[4] Further, SBE believes that licensees who choose to install EAS equipment prior to the EAS deadlines be allowed to implement unattended operation (or attended operation by unlicensed personnel) at that time. As the Commission notes, at Paragraph 17 of the NPRM, this option would most likely serve as an incentive towards the early implementation of the new EAS.

X. Eliminate Requirement for RP

25. For stations not wishing to operate unattended, the NPRM asks if the present requirement that the duty operator hold at least a Restricted Radiotelephone Operator Permit ("RP") be eliminated. To this question the SBE answers "yes." The RP is a token license and serves no useful purpose. Now that the Commission no longer has a statutory obligation to require a licensed operator, the sooner the requirement for the token RP is deleted, the better.

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[4] See December 9, 1994, Report and Order and Further Notice of Proposed Rule Making to FO Dockets 91-171 and 91-301.

XI. SBE Certification Programs Will Do a Better Job Than the FCC RP

26. Because the RP had no examination requirement, it proved nothing as to an operator's qualifications or ability to act as a duty operator at a broadcast station. In contrast, the SBE has recently introduced an entry-level certification aimed at newcomer radio broadcast station duty operators. The SBE *Radio Operator's Certification* is modeled after the discontinued Radiotelephone Third Class Operator's License with Broadcast Endorsement. It has, of course, been updated to reflect today's operational practices. SBE also expects to offer, in early 1995, a companion *TV Operator's Certification* course, for entry-level operators at television stations.

27. These entry-level certifications are in addition to the SBE's established certification levels for broadcast engineers. The SBE Certified Broadcast Technologist ("CBT"), Certified Broadcast Radio Engineer ("CBRE"), Certified Broadcast Television Engineer ("CBTE"), Certified Senior Radio Engineer ("CSRE"), Certified Senior Television Engineer ("CSTE"), and Professional Broadcast Engineer ("PBE"), were all created in response to the "vacuum" left by the Commission's 1981 elimination of the First Class Radiotelephone License. Combined with the entry-level certification courses, they provide licensees of radio and television stations with an unbiased and objective criteria for selecting both duty operators (for those stations electing not to operate unattended) and maintenance engineers, in order to fulfill their obligation to take whatever steps are necessary to ensure that their station is transmitting a signal that meets all of the Commission's technical requirements.

XII. Designated Contact Person

28. At Paragraph 24 the NPRM proposes to establish a database that the Commission, or other governmental agencies, could use to contact the responsible person for an unattended broadcast station. SBE suggests this person be referred to as the Designated Contact Person, or DCP. SBE anticipates that this would often be the Designated Chief Operator (DCO), but need not necessarily be the same person.

29. The Commission proposes a dial-up database, with each station assigned an unique access code at the time of grant (for new stations) or at the time of license renewal (for existing stations). Stations would then use this access code to enter, and keep current, the name, address, and telephone number of the DCP. The database would be protected so that a station could alter jonly its own record, and then only with the proper password.

30. SBE believes this to be a reasonable approach. It is important that a contact person exist, so that the Commission, or other governmental agencies, can promptly reach a person who can take

an interfering station off the air, if necessary. While interference cases warranting immediate action are rare, they do occasionally occur. For example, the activation of a newly installed nearby transmitter (either broadcast or non-broadcast) could cause the generation of a new intermodulation product that could fall on a critical air traffic, police, fire, or similar frequency. This intermodulation product might cause no degradation of the station's own signal, so there would be no indication of a problem as a result of complaints from listeners or advertisers.

31. SBE suggests that a broadcast station also be assigned its password upon request, to accommodate an existing station that wishes to implement unattended operation prior to its next license renewal. SBE further suggests that stations providing a contact person's name and number be given the option of specifying restricted or unrestricted access. If restricted access is requested, the master list would only allow government officials with the appropriate access code to access the data. If unrestricted access is specified, any party calling the database number would be allowed access to the information. The selection of restricted versus unrestricted access should be a parameter than can be changed at will by each station.

32. SBE suggests that unattended stations be encouraged to designate an alternate DCP, so that if the primary contact person is unavailable the Commission or other governmental agency is more likely to always be able to promptly reach a responsible person, in the unlikely event of a serious interference problem.

33. For the database and signage requirement to be effective, the Commission could spot-check stations on record as operating unattended, to ensure that the database information is accurate. An appropriate, attention-getting forfeiture should be assigned to any station failing to keep its contact person information current.

34. SBE concurs with the suggestion, at Paragraph 24 of the NPRM, to extend the Part 74 LPTV requirement[5] to display a sign legible to a person standing at ground level at the transmitter site of any station electing unattended operation, providing the name, address, and telephone number of the licensee or local representative of the licensee, to any station choosing unattended operation.

XIII. Maximum Time Period for Non-Compliance

35. SBE agrees that out-of-tolerance conditions with little or no interference potential should be allowed a 10-day period for correction. Out-of-tolerance conditions with little or no interference

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[5] Section 74.765(c) of the FCC Rules.

potential that cannot be corrected within 10 days should then be subject to the Special Temporary Authority (STA) protocols.

36. SBE also agrees that out-of-tolerance conditions with interference potential must be "immediately" rectified. These include overpower operation, overmodulation, off frequency operation, spurious emissions, and inappropriate modes of operation (for directional AM stations). SBE concurs with the Commission proposal to allow a 24-hour period for a directional AM station with out of tolerance parameters to measure all of its monitoring points, before being required to reduce power or cease operation. However, SBE would like the Commission to clarify that excessive fields due to overpower operation (*i.e.*, excessive common point current) or inappropriate mode of operation (*i.e.*, failure to switch from a daytime to a nighttime pattern) will trigger the "immediate" 3-minute corrective action requirement, and not the longer 24-hour to allow measuring the monitoring points requirement.

37. As previously discussed, AMC equipment should not be required to routinely monitor for off-frequency operation or spurious emissions. However, once a licensee learns of such a problem, either by Commission notification, complaints from other stations, or any other credible means, the licensee should have the obligation to take immediate corrective action, such as switching to a backup transmitter or antenna, reducing power to minimize the impact of the spurious emission, or, in severe cases, ceasing operation.

XIV. Calibration of Monitoring Equipment

38. SBE agrees that the uncertainty of the measuring instrument should be taken into account when determining whether a particular parameter is within tolerance. For example, a long-standing rule-of-thumb is that a frequency counter should have an accuracy at least 10 times better than the frequency tolerance applying to the station being measured.

39. However, SBE is puzzled by the proposal to revert to a "how to" rule. "How to" rules were generally discarded by the Commission in its 1983 General Docket rule making re-examining technical regulations,[6] on the rationale that Commission licensees could be trusted (and held accountable for) decisions as to how often preventative or routine maintenance or measurements should be taken. SBE believes it sufficient for the Commission to simply caution its licensees that measurement uncertainty must be considered by AMC equipment, and by licensees making manual measurements, when checking to see whether a particular parameter is within tolerance.

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[6] "In the Matter of A Re-Examination of Technical Regulations," General Docket 83-114. Report and Order adopted November 8, 1984, and effective December 7, 1984.

40. In the event the Commission nevertheless adopts the proposed "how to" rule, the wording in the proposed new Section 73.1350(c)(2), "...monitoring equipment must be *periodically calibrated* so as to provide reliable indications..." is so vague as to be worthless. SBE respectfully suggests that the Commission either place a definite maximum time interval between monitoring equipment calibrations (*e.g.*, 24 months, or as recommended by the manufacturer of the equipment, which ever is shorter) or eliminate such a vague, unenforceable, and subject to interpretation requirement from the new rules.

XV. Dial-Up Remote Control Systems

41. At Paragraph 40 the NPRM proposes that dial-up remote control systems, which do not have the benefit of a dedicated, leased telephone line to the transmitter, have a back-up method of ensuring that control can always be accessed within 3 minutes. SBE believes this is still too lenient. A dial-up remote control system that depends upon the availability of the switched telephone system is at risk in the event of an emergency. Even where the switched telephone system is still physically intact after a natural disaster or other emergency, telephone circuits are invariably overloaded by thousands of people attempting to call their significant others to ascertain if they are "all right."

42. SBE believes that the Commission is naive to think that a vague requirement for "an alternate method" will ensure fail-safe control. A specific, verifiable, fall-back requirement, such as a mandatory fail-safe circuit for the studio-to-transmitter link (be it an RF link, leased analog telephone line, T1 circuit, or fiber optic interconnect), is the only method of ensuring a last-ditch, shut-down capability for stations using a dial-up remote control system.

List of Figures

43. The following figures or exhibits have been prepared as a part of these MM Docket 94-130 comments:

1. Appendix A: Examples of recent violations of the Commission's Rules involving interference or safety issues.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

By _____
Charles W. Kelly, Jr., President

By _____
Dane E. Ericksen, P.E., CSRE, CSTE
Chairman, SBE FCC Filings Committee

By _____
Christopher D. Imlay, Its Counsel

January 20, 1995

Booth, Freret & Imlay
1233 20th Street, Suite 204
Washington, D.C. 20036
202/296-9100

SBE Comments to MM Docket 94-130

Appendix A: Examples of Recent Violations of the Commission's Rules Involving Interference or Safety Issues

1. KURS, Chula Vista, California. March, 1994. Violation Notice and $20,000 Notice of Apparent Liability (NAL) for failure to reduce power during nighttime hours. Station temporarily reduced its power at sunset, and then reverted to full daytime power after the local FCC field office had closed for the day.

2. January, 1994: WAWK, Kendallville, Indiana; WCST/WCST-FM, Berkeley Springs, West Virginia; WHLX, Wheeling, West Virginia; KLGS, Versailles, Missouri; KBCE(FM), Boyce, Louisiana; WBSL, St. Louis, Missouri; WHLV, Hattiesburg, Mississippi; WHSY/WHSY-FM, Hattiesburg, Mississippi; and WJKX(FM), Ellisville, Mississippi. NALs issued for EBS deficiencies, remote control deficiencies, and lack of protective fences around AM towers.

3. October, 1993: KBAI, Morro Bay, California; KWNK, Simi Valley, California; WRJN, Racine, Wisconsin; KINE, Kingsville, Texas; KBEN, Carrizo Springs, Texas; KHER(FM), Crystal City, Texas; KBNL(FM), Laredo, Texas; KORO(TV), Corpus Christi, Texas; KVLT(FM), Victoria, Texas; KIXS(FM), Victoria, Texas; KQTX(FM), Corpus Christi, Texas; KDOS, Laredo, Texas; and KRME, Hondo, Texas. NALs issued for EBS deficiencies, overpower operation, out of tolerance directional arrays, unlicensed or no duty operators, and other Rule violations.

4. WOKJ, Jackson, Mississippi. May, 1993. Violation Notice and $8,000 NAL for failure to keep required tower lighting in effect (the station's six 388-foot tall towers, located only 2.5 miles from an airport, had not been illuminated for a five-month period.)

5. WWWT, Randolph, Vermont. April, 1993. Violation Notice and $20,000 NAL for operating at full daytime power during nighttime hours.

6. WTMM, Richmond, Virginia. April, 1993. Violation Notice and $12,000 for failure to maintain required tower lighting.

7. WSKS-FM, Milledgeville, Georgia. June, 1992. Violation Notice and $8,000 NAL for failure to maintain required tower lighting.

8. KBUC, Cibolo, Texas. February, 1992. Violation notice for operation with omnidirectional daytime pattern rather than prescribed directional nighttime pattern, for overpower operation, for overmodulation, for failure to keep required tower lighting in proper operating condition, for failure to have an operator on duty, for failure to have required indicating instruments, for failure to comply with the EBS Rules, and other violations.

9. KJME, Denver, Colorado. March, 1991. Violation Notice and $5,000 NAL for overpower operation (second NAL for overpower operation).

10. WZAM, Norfolk, Virginia. January, 1991. Violation Notice and $7,900 NAL for operation during nighttime hours, for operating a directional AM station by remote control without authority therefore, and without the ability of adjusting transmitter power by remote control or ceasing operation by remote control, and for inoperative EBS equipment.

11. KDKO-FM, Littleton, Colorado. December, 1990. Violation notice and $10,000 NAL for failure to switch from daytime power to nighttime power and nighttime directional antenna pattern. Also failure to discontinue operation by remote control within three hours after a malfunction in the remote control equipment was detected.